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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/596,852	06/27/2006	Thomas Kallstenius	P18947-US2	1345

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EXAMINER	
LEUNG, WAI LUN	
ART UNIT	**PAPER NUMBER**
2613	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/596,852	KALLSTENIUS, THOMAS	
	Examiner	Art Unit	
	DANNY W. LEUNG	2613	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 April 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *27-52* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *27-36,38-49,51 and 52* is/are rejected.

7)☒ Claim(s) *37 and 50* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *20060627*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings were received on 4/23/2009. These drawings are accepted.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 27, 35, and 38-39 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent (*Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876).) and recent Federal Circuit decisions ***In re Bilski***, 88 USPQ2d 1385 (Fed. Cir. 2008) indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim recites a series of steps or acts to be performed, the claim neither transforms underlying subject matter nor positively ties to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are

> such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Furthermore, the key to supporting any rejection under 35 U.S.C. 103 is the clear articulation of the reason(s) why the claimed invention would have been obvious. The Supreme Court in *KSR International Co. v. Teleflex Inc.* note that the analysis supporting a rejection under 35 U.S.C. 103 should be made explicit. The Court quoting *In re Kahn* 441 F.3d977,988,78 USPQ2d1329,1336(Fed.Cir.2006) stated that "[R]ejections on obviousness cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness."

4. Claims 27, 28, 36, 38, 40, 41, 49, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant's admitted prior art** *(fig 1-3),* in view of **Fellows et al.** *(US005459607A)*.

Regarding claims 27 and 40, **Applicant's admitted prior art** discloses an Apparatus for use in monitoring transmissions over a unidirectional optical fiber loop coupling multiple nodes *(fig 2, --Prior Art-- shows a unidirectional loop, with Main BS measuring Roundtrip Delay (RTD))*, comprising electronic circuitry operative to: measure a round trip delay time for a signal sent from a first node *(fig 2 --Prior Art--, Main BS),* to travel around the unidirectional optical fiber loop and be received at the first node *(fig 2 --Prior Art--, RTT signal goes around the loop clockwise, passing Remote BS, and received by the Main BS)*; and, account for delay on signal transmissions over the unidirectional optical fiber loop using the measured round trip delay time

(fig 2 --Prior Art--, Main BS with Central Clock System accounts for delay in the system by measuring Roundtrip Delay),

Applicant's admission does not disclose expressly wherein the delay on signal transmission over the unidirectional optical fiber loop is caused by temperature induced affects. **Fellows**, from the same field of endeavor, teaches delay on signal transmission over optical fiber loop being caused by temperature induced affects is common and well known *(col 1, ln 19-27, "the delay path between sending clock of the main unit out to the remote location and receiving data back at the main unit (Round Trip Time) is long and dynamically changing due to changes in temperature which effects the equivalent and physical length of the fiber")*. Therefore, it would have been obvious for a person of ordinary skill in the art at the time of invention to use a common and well known method such as measuring a round trip delay time for a signal as described by the **applicant as admitted prior art**, to account for delay on signal transmission over optical fiber caused by temperature induced affects, which is also common and well known as suggested by **Fellows,** and the result of which would have been predictable. The motivation for doing so would have been to minimize transmission errors due to the dynamic change in optical fiber lengths induced by temperature variation, which causes delay in signal transmission.

As to claims 36 and 49, **Applicant's admission** further teaches wherein the first node is a main base station unit, including processing circuitry and a central clock source *(fig 1, --Prior Art-- Main BS 10, including a CSC "central system clock")*, and the one or more other nodes are remote base station units including radio transceiving circuitry *(fig 1, --Prior Art-- Remote BS 14)* for communicating over a radio interface with a mobile radio terminal *(fig 1, --Prior Art-- Mobile Terminal 16),* ; wherein the mobile terminal determines one or more round trip times

(RTTs), each RTT corresponding to the time for an RTT message transmitted by the mobile terminal to travel to the remote base station unit and be returned from the remote base station unit to the mobile terminal *(fig 2 --Prior Art—as noted by the dotted line notating "RoundTrip Time)* ; and, wherein the mobile terminal calculates the one or more RTTs using the measured round trip delay time *(paragraphs 8, "the RID must be determined and substracted formt he total time in order to the mobile terminal to calculate the actual round-trip time (RTT) measurement").*

As to claims 38 and 51, **Fellows** teaches one or more links of the unidirectional fiber loop are subjected to temperature variations greater than those to which one or more other portions of the unidirectional fiber loop are subjected, *((col 1, ln 19-27, the optical fiber length is long and dynamically changing due to temperature; and for such a long length between base station and remote station, it is obvious that some portions of the fiber are subjected to greater temperature variations than others).*

As to claims 28 and 41, **Fellows** teaches a well recognized problem, as discussed above, that variation in temperature causes dynamic change in equivalent and physical length of fiber, which may induce a change in delay *(col 1, ln 19-27).* **Applicant's admission** further teaches wherein the electronic circuitry is located in a first one of the nodes associated with a central system clock *(fig 2, Main BS with CSC)* is configured to measuring a first round trip delay time in the unidirectional optical fiber loop *(fig 2, --Prior Art-- RTD), and it would have been obvious that a second round trip delay time can be subsequently measured as a part of a routine undue experimentation in order to measure variation in delay.* Therefore, it would be obvious for a person of ordinary skill in the art at the time when the invention was made to measure a change

in temperature-induced delay time *(Fellows)* based on the first and second round trip delay times *(Admission)*, to establish a mathematical relationship between temperature and delay, and determine a temperature-induced delay time correction according to the mathematical relationship established by undue experimentation with a reasonable expectation of success. Using that mathematical relationship between change in temperature and change in delay time, it is obvious to a person of ordinary skill in the art that the determined temperature-induced delay time correction may be used to determine a time difference between the first node and one or more other nodes coupled to the unidirectional optical fiber loop. As discussed above, "a person of ordinary skill has good reason to pursue the known options within his or her technical grasp", and therefore the product and method is "not of innovation but of ordinary skill and common sense" see *KSR,* 550 U.S., 82 USPQ2d at 1397; MPEP 2143 Section E.

5. Claims 29-31, 33-35, 39, 42-44, 46-48, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant's admitted prior art** *(fig 1-3),* in view of **Fellows et al.** *(US005459607A)*, as applied to claims 28 and 41 as discussed above, and further in view of **Otsuka et al.** *(US005519710A)*.

Regarding claims 29 and 42, **the combination of applicant's admission and Fellows** discloses the method for monitoring optical transmission in accordance to claims 28 and 41 as discussed above. **It** does not disclose expressly the step of time synchronizing the multiple nodes taking into account the determined temperature-induced delay time correction. **Otsuka**, from the same field of endeavor, teaches a method of time synchronizing the multiple nodes taking into account a determined delay time correction due to varying distances *(col 5, ln 18-35, site 2 and site 3 is synchronized by aligned with a correction delay time D1, which is derived*

from mobile unit in a constantly change locations with varying distance). Therefore, it would have been obvious for a person of ordinary skill in the art at the time of invention to apply the step of time synchronizing the multiple node taking into account the determined temperature-induced delay time correction onto **applicant's admission and Fellow**'s system as suggested by **Otsuk**, since the temperature-induced delay is caused by varying fiber length. The motivation for doing so would have been to accurately communicate data by having synchronous time slots.

As to claims 30 and 43, **Fellows** further teaches wherein the fiber path may be variable by as much as several bits of a high bit rate because of temperature variation *(col 3, ln 35-38),* in a high bit rate system such as that of **Otsuka's** *(col 4, ln 66-67, a 1.5 Mbps signal),* it would have been obvious for a person of ordinary skill in the art that the time difference between the synchronized nodes is in the range of one nanosecond to several microseconds.

As to claims 31 and 44, **Otsuka** further teaches determining a link time delay associated with one or more of the links and, using one or more determined link time delays in determining one or more time difference between the first node and the one or more other nodes *(col 6, ln 17-26);* where **applicant's admitted prior art figure** illustrates that wherein adjacent nodes in the unidirectional optical fiber loop are coupled together by an optical fiber link *(fig 2 --Prior Art -- Fiber loop 12).*

As to claims 33 and 46, it would have been obvious for a person of ordinary skill in the art at the time when the invention was made to determine the temperature-induced delay time correction *(as suggested by **Fellows,** col 1, ln 19-27),* based on a difference between the first and second round trip delay times and the one or more determined link time delays *(as suggested by*

Otsuka, *(col 4, ln 27-35),* and the result of which would have been predictable for the same reasons as discussed above.

As to claims 35 and 48, **Otsuka** further teaches sending a timestamp message from one or more of the other nodes to the first node indicating a local time at that other node *(col 3, ln 30-39, timing advance message indicate the timing at the mobile unit)* and, determining a respective local time difference between the time in each received timestamp message and the local time at the first node *(col 4, ln 59-61)*.

As to claims 39 and 52, **Otsuka** further teaches the step of calculating a delay time correction for one or more of the nodes other than the first node *((col 6, ln 17-26, delay time correction is calculated for all sites / nodes),* wherein the delay time is temperature-induced, as suggested by **Fellows** as discussed above.

As to claims 34 and 47, **Otsuka** further teaches generating a time synchronization message based on the temperature-induced delay time correction *(col 3, ln 54-59, a timing advance message generator generates a message based on the delay correction)*; and, sending the time synchronization message from the first node to a second of the nodes to permit the second node to adjust the absolute time at the second node to be synchronized with the absolute time at the first node *(col 3, ln 59-67, timing advance message of each mobile unit can be amended in response to the delay time detector, and applying a renewed timing advance message)*.

6. Claims 32 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Applicant's admitted prior art** *(fig 1-3),* in view of **Fellows et al.** *(US005459607A)*, and

Otsuka et al. *(US005519710A)*, as applied to claims 31 and 42 as discussed above, and further in view of **Stange** *(US005493629A)*.

Regarding claims 32 and 45, **the combination of applicant's admission, Fellows, and Otsuka** discloses the method for monitoring optical transmission in accordance to claims 31 and 42 as discussed above. **It** does not disclose expressly wherein optical time domain reflectometry is used in determining the time delay associated with each link. **Stange**, from the same field of endeavor, teaches optical time domain reflectometry is a common and well known method used in determining the time delay associated with each link *(col 4, ln 49-67)*. Therefore, it would have been obvious for a person of ordinary skill in the art at the time of invention to use optical time domain reflectometry onto **the combination of applicant's admission, Fellows, and Dawes**'s system as suggested by **Stange**. The motivation for doing so would have been to a common and well known technique such as OTDR to measure temperature induce delay such that the compensation result would be more accurate.

Allowable Subject Matter

7. Claims 37 and 50 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to temperature induced time delay in optical communication system in general:

(US-20070127919 or US-20050226214 or US-20050019031) or (US-7489638 or US-7349537 or US-7323677 or US-7274879 or US-7272309 or US-7123589 or US-6442140 or US-6356386 or US-6307988 or US-6195046 or US-5805983 or US-5633872 or US-5519710 or US-5513194 or US-5493629 or US-5459607 or US-5355368 or US-5317571 or US-5299044 or US-5210763 or US-5149961 or US-4893318 or US-4332026)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANNY W. LEUNG whose telephone number is (571)272-5504. The examiner can normally be reached on 11:30am-9:00pm Mon-Thur.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kenneth Vanderpuye can be reached on (571) 272-3078. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

DANNY W LEUNG
Examiner
Art Unit 2613

5/20/2009
/D. W. L./
Examiner, Art Unit 2613

/Kenneth N Vanderpuye/
Supervisory Patent Examiner, Art Unit 2613